

Ser. No. 10/536,829
 Docket No. Y31-184577C/KK
 NGB.534

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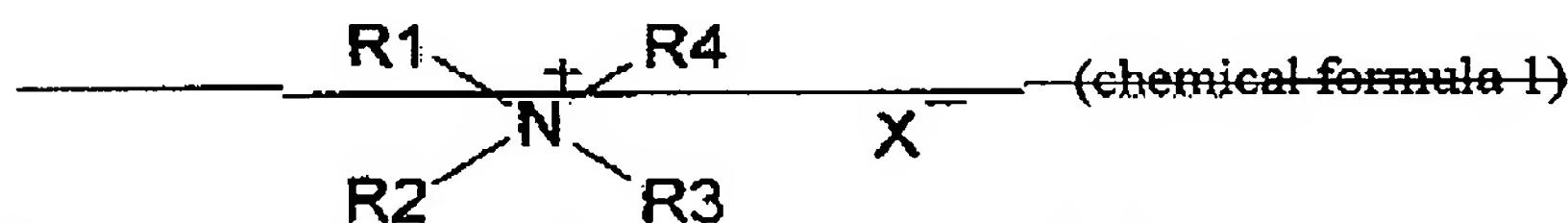
AMENDMENTS TO THE CLAIMS

Please cancel claims 12 and 15-17 without prejudice or disclaimer.

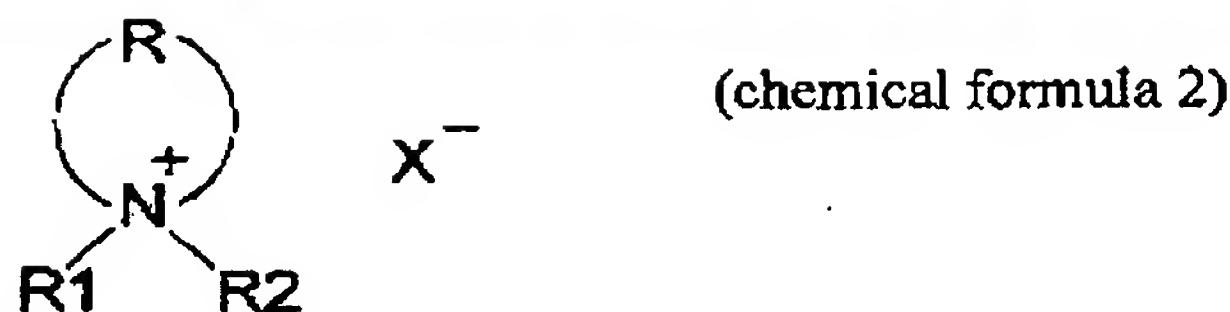
1. (Canceled)

2. (Currently amended) A nonaqueous electrolyte, comprising:

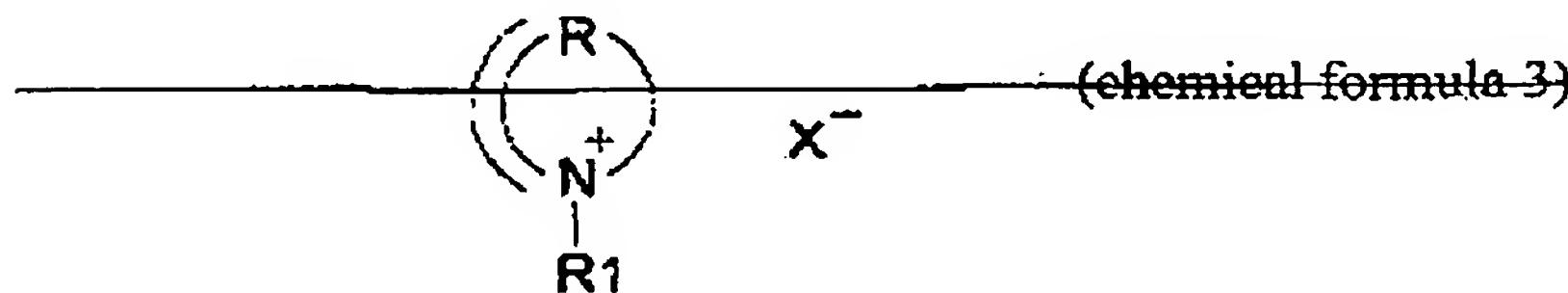
an organic solvent and a lithium salt dissolved in the organic solvent; and
 a quaternary ammonium salt in an amount of 0.05 mol/L or greater and 0.5 mol/L or less,
 the quaternary ammonium salt having a structure represented by any of (chemical formula 1),
 (chemical formula 2), and (chemical formula 3):



(wherein R1, R2, R3, and R4 each are either an alkyl group having 1-6 carbon atoms or an alkyl group in which at least part of the hydrogen atoms each has been replaced by a fluorine atom; and X is a fluorine-containing anion, and wherein R1=R2=R3=R4 is excluded),



(wherein R is a divalent organic linking group having a main chain which has 4-5 atoms and is constituted of at least one member selected from carbon, oxygen, nitrogen, sulfur, and phosphorus; R1 and R2 each are either an alkyl group having 1-6 carbon atoms or an alkyl group in which at least one part of the hydrogen atoms each has been replaced by a fluorine atom; and X is a fluorine-containing anion),



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(wherein ~~R~~ is an organic linking group or an organic linking group forming an aromatic ring, the organic linking groups each having a main chain which has 4-5 atoms and is constituted of at least one member selected from carbon, oxygen, nitrogen, sulfur, and phosphorus and having one single bond end and one double bond end; ~~R1~~ is an alkyl group having 1-6 carbon atoms or an alkyl group in which at least part of the hydrogen atoms each has been replaced by a fluorine atom; and ~~X~~ is a fluorine containing anion).

3. (Previously presented) The nonaqueous electrolyte of claim 2, wherein said organic solvent comprises one or more organic solvents selected from the group consisting of ethylene carbonate, propylene carbonate, butylene carbonate, γ -butyrolactone, and γ -valerolactone.
4. (Previously presented) The nonaqueous electrolyte of claim 2, wherein the nonaqueous electrolyte comprises one or more members selected from the group consisting of BF_4^- , PF_6^- , CF_3SO_3^- , $\text{N}(\text{CF}_3\text{SO}_2)_2^-$, $\text{N}(\text{C}_2\text{F}_5\text{SO}_2)_2^-$, $\text{N}(\text{CF}_3\text{SO}_2)(\text{C}_4\text{F}_9\text{SO}_2)^-$, $\text{C}(\text{CF}_3\text{SO}_2)_3^-$, and $\text{C}(\text{C}_2\text{F}_5\text{SO}_2)_3^-$.
5. (Previously presented) A nonaqueous-electrolyte battery, comprising:
a positive electrode, a negative electrode, and a nonaqueous electrolyte according to claim 2.
6. (Previously presented) The nonaqueous-electrolyte battery of claim 5, wherein the negative electrode comprises a graphite.
7. (Previously presented) The nonaqueous-electrolyte battery of claim 5, further comprising:
a sheath formed over said positive and negative electrodes and said electrolyte, said sheath comprising a metal/resin composite material.
8. (Canceled)
9. (Previously presented) A nonaqueous-electrolyte battery which comprises a positive electrode, a negative electrode, and a nonaqueous electrolyte according to claim 3.

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10. (Previously presented) A nonaqueous-electrolyte battery which comprises a positive electrode, a negative electrode, and a nonaqueous electrolyte according to claim 4.

11. (Previously presented) The nonaqueous electrolyte of claim 2, wherein said organic solvent comprises a member selected from the group consisting of propylene carbonate and butylene carbonate.

12. (Canceled)

13. (Previously presented) The nonaqueous electrolyte of claim 2, wherein the quaternary ammonium salt having a structure represented by chemical formula 2 comprises a combination of an anion and a member selected from the group consisting of a pyrrolidinium cation, piperidinium cation, and pyrrolium cation.

14. (Previously presented) The nonaqueous electrolyte of claim 13, wherein the pyrrolidinium cation comprises a member selected from the group consisting of a 1,1-dimethylpyrrolidinium ion, 1-ethyl-1- methyl- pyrrolidinium ion, 1-methyl-1-propylpyrrolidinium ion, and 1-butyl-1-methylpyrrolidinium ion,

wherein the piperidinium cation comprises a member selected from the group consisting of a 1,1-dimethylpiperidinium ion, 1-ethyl-1-methylpiperidinium ion, 1-methyl-1-propylpiperidinium ion, and 1-butyl-1-methylpiperidinium ion, and

wherein the pyrrolium cation comprises a member selected from the group consisting of a 1,1-dimethylpyrrolium ion, 1-ethyl-1-methylpyrrolium ion, 1-methyl-1-propylpyrrolium ion, and 1-butyl-1-methylpyrrolium ion.

15-17. (Canceled)

18. (Previously presented) The nonaqueous electrolyte of claim 2, wherein said amount of said quaternary ammonium salt is 0.1 mol/L or greater and 0.35 mol/L or less.

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19. (Previously presented) The nonaqueous electrolyte of claim 2, wherein said lithium salt comprises a member selected from the group consisting of LiBF₄, LiPF₆, LiCF₃SO₃, LiN(CF₃SO₂)₂, LiN(C₂F₅SO₂)₂, LiN(CF₃SO₂)(C₄F₉SO₂), LiC(CF₃SO₂)₃, and LiC(C₂F₅SO₂)₃.

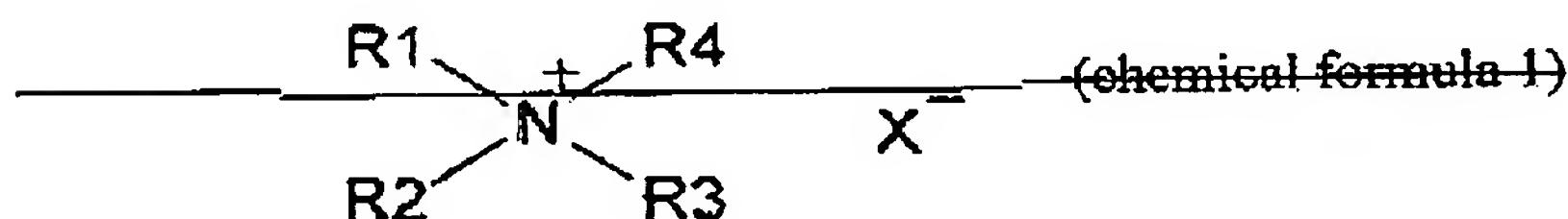
20. (Currently amended) A nonaqueous-electrolyte battery, comprising:

a power generating unit comprising a positive electrode, a negative electrode, and a separator interposed between said positive and negative electrodes; and

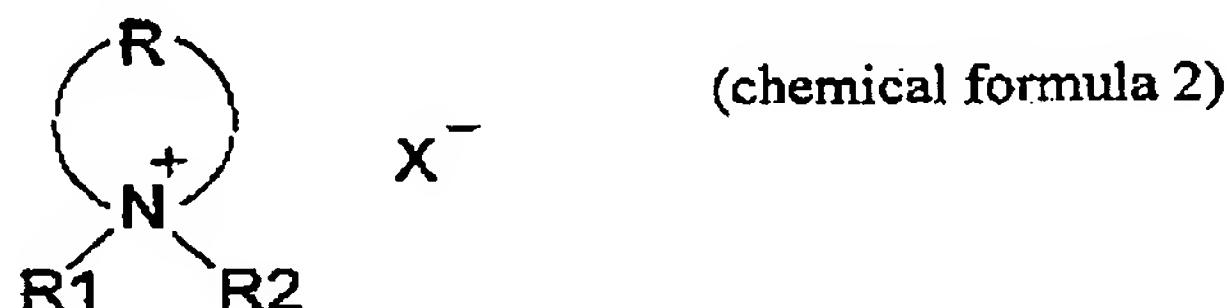
a nonaqueous electrolyte impregnated into said power generating unit, said nonaqueous electrolyte comprising:

an organic solvent and a lithium salt dissolved in the organic solvent; and

a quaternary ammonium salt in an amount of 0.06 mol/L or greater and 0.5 mol/L or less, the quaternary ammonium salt having a structure represented by any of (chemical formula 1), (chemical formula 2), and (chemical formula 3):



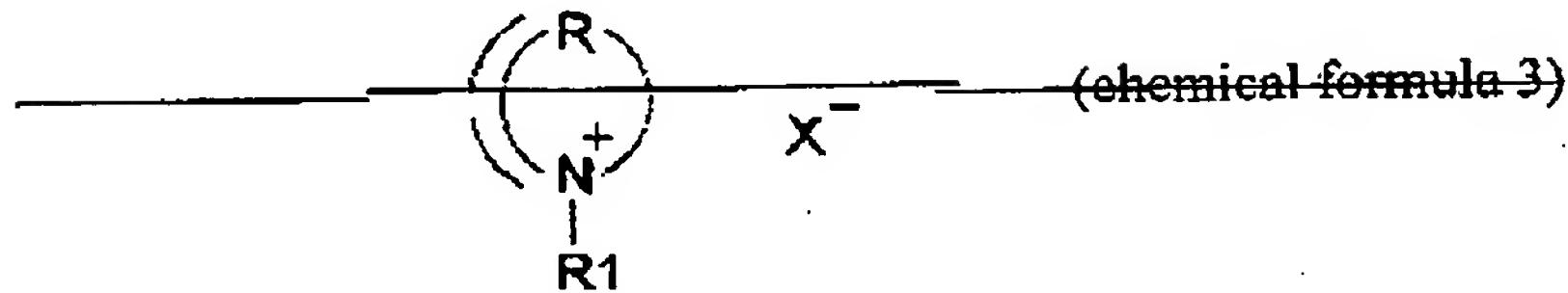
(wherein R₁, R₂, R₃, and R₄ each are either an alkyl group having 1-6 carbon atoms or an alkyl group in which at least part of the hydrogen atoms each has been replaced by a fluorine atom; and X⁻ is a fluorine-containing anion, and wherein R₁=R₂=R₃=R₄ is excluded),



(wherein R is a divalent organic linking group having a main chain which has 4-5 atoms and is constituted of at least one member selected from carbon, oxygen, nitrogen, sulfur, and phosphorus; R₁ and R₂ each are either an alkyl group having 1-6 carbon atoms or an alkyl group in which at least one part of the hydrogen atoms each has been replaced by a fluorine atom; and X⁻ is a fluorine-containing anion),

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(wherein R is an organic linking group or an organic linking group forming an aromatic ring, the organic linking groups each having a main chain which has 4-5 atoms and is constituted of at least one member selected from carbon, oxygen, nitrogen, sulfur, and phosphorus and having one single bond end and one double bond end; R1 is an alkyl group having 1-6 carbon atoms or an allyl group in which at least part of the hydrogen atoms each has been replaced by a fluorine atom; and X is a fluorine-containing anion).